# WEST Search History

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DATE: Thursday, May 05, 2005

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| ☐ | L17 | L16 and (threshold or limit) | 387 |
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| ☐ | L14 | (operation or process) near8 (control or controlling or monitor or monitoring) near8 (screen or display) near8 (select or selecting or selection) | 3452 |
| ☐ | L13 | operation near8 (control or controlling or monitor or monitoring) near8 (screen or display) | 44821 |
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| ☐ | L9 | (operator or supervisor) near8 (interface or screen or display) near8 (controller or agent) | 6087 |
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| ☐ | L6 | screen near8 agent near8 controller near8 intelligent | 0 |
| ☐ | L5 | screen near8 (list or menu) near8 controller near8 intelligent | 2 |
| ☐ | L4 | screen near5 (list or menu) near5 controller near5 intelligent | 2 |
| ☐ | L3 | 20000811 | 9 |
| ☐ | L2 | intelligent screen | 16 |
| ☐ | L1 | intelligent-agent-rule-configuration-screen | 0 |

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L8: Entry 1 of 7 File: USPT Feb 25, 2003

DOCUMENT-IDENTIFIER: US 6525664 B1
**** See image for Certificate of Correction ****
TITLE: Control console remote monitoring system

Application Filing Date (1):
19941110

Brief Summary Text (9):
In another aspect, the present invention provides a remote monitoring system, comprising a control console and a portable monitoring unit, wherein the control console, includes processing means for processing measurement data related to a monitored parameter in relation to a predetermined parameter threshold, for providing an alarm-condition signal upon said processed measurement data reaching said parameter threshold, and for causing a radio coupled to the control console to transmit said alarm-condition signal; and wherein the portable monitoring unit includes a radio for receiving said alarm-indication signal transmitted by the radio that is coupled to the control console; means for providing an alarm; a display device; a processor coupled to the portable-unit radio, the alarm providing means and the display device, and adapted for responding to receipt of a said alarm-condition signal by the portable-unit radio by causing the alarm providing means to provide an alarm and by causing the display device to display said alarm condition; a keypad for enabling said measurement data to be requested from the control-console processing means; wherein the portable-unit processor is adapted for responding to an operation of the keypad to request said measurement data from the control-console processing means by causing the portable-unit radio to transmit to the radio coupled to the control console a request for transmission of said measurement data; wherein the control-console processing means is adapted for responding to receipt by the radio coupled to the control console of said request for said measurement data by causing the radio coupled to the control-console processing means to transmit said requested measurement data to the portable-unit radio; and wherein the portable-unit processor is adapted for responding to receipt by the portable-unit radio of said requested measurement data by causing the display device to display said requested measurement data that is received by the portable-unit radio in response to said request.

CLAIMS:

12. A remote monitoring system, comprising a control console and a portable monitoring unit, wherein the control console, includes processing means for processing measurement data related to a monitored parameter in relation to a predetermined parameter threshold, for providing an alarm-condition signal upon said processed measurement data reaching said parameter threshold, and for causing a radio coupled to the control console to transmit said alarm-condition signal; and wherein the portable monitoring unit includes a radio for receiving said alarm-condition signal transmitted by the radio that is coupled to the control console; a display device; means other than the display device for providing an alarm; a processor coupled to the portable-unit radio, the alarm providing means and the display device, and adapted for responding to receipt of said alarm-condition signal by the portable-unit radio by causing the alarm providing means to provide

an alarm and by causing the display device to display said alarm condition; a keypad for enabling said measurement data to be requested from the control-console processing means; wherein the portable-unit processor is adapted for responding to an operation of the keypad to request said measurement data from the control-console processing means by causing the portable-unit radio to transmit to the radio coupled to the control console a request for transmission of said measurement data; wherein the control-console processing means is adapted for responding to receipt by the radio coupled to the control console of said request for said measurement data by causing the radio couple to the control-console processing means to transmit said requested measurement data to the portable-unit radio; wherein the portable-unit processor is adapted for responding to receipt by the portable-unit radio of said requested measurement data by causing the display device to display said requested measurement data that is received by the portable-unit radio in response to said request; wherein the portable-unit keypad is adapted for enabling selection of an alarm-acknowledgment signal for transmission to the control console; wherein the portable-unit processor is adapted for responding to operation of the keypad to select said alarm-acknowledgment signal for transmission by causing the portable-unit radio to transmit said alarm-acknowledgment signal to the radio coupled to the control console; and wherein the control-console processing means is adapted for responding to receipt of said alarm-acknowledgment signal by the radio that is coupled to the control-console processing means by discontinuing provision of said alarm-condition signal.

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L8: Entry 3 of 7 File: USPT Mar 11, 1997

DOCUMENT-IDENTIFIER: US 5609770 A
TITLE: Graphical operator machine interface and method for information entry and selection in a dialysis machine

Application Filing Date (1):
19950607

Detailed Description Text (66):
Even though the customized display screens for the setup parameters, the monitoring parameters and the alarm limits parameters will normally accomplish all of the functionality required by an operator, all of the parameters associated with the dialysis machine are also available to be selected and the values associated with those parameters modified. The screen display presentation for all of the parameters, including those which are otherwise displayed on the customized display screens, are conveniently accessible through selection of the defaults button 186 shown in the screen display 150 in FIG. 15. When the operator touches the defaults button 186, as shown by step 280 in FIG. 16, the entire list of default parameters is presented in the main window 152 (FIG. 15) and at step 282 (FIG. 16).

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L8: Entry 7 of 7 File: USPT Jul 16, 1991

DOCUMENT-IDENTIFIER: US 5033004 A
TITLE: Method and system for blending coal and other natural resources

Application Filing Date (1):
19881223

Detailed Description Text (67):
Easy modification of the parameter limits is available from parameter modification screens on the monitor screen 14 illustrated in Table 14. This makes it easy for the user to optimize, check the stability results, modify the parameter limits through input through keyboard 11 for reoptimization, etc. until the user is satisfied with the stable optimal set of blends.

Detailed Description Text (68):
To calculate the stability, the original contract parameter limits are used, but for optimization, the modified parameter limits are used--i.e. safe limits. The safe parameter limits are equal to the contact parameter limits unless modified by the user through the keyboard 11 from a screen displayed on monitor 14 as illustrated in Table 14.

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L19: Entry 1 of 1 File: USPT Jan 2, 2001

DOCUMENT-IDENTIFIER: US 6168563 B1
** See image for Certificate of Correction **
TITLE: Remote health monitoring and maintenance system

Application Filing Date (1):
19990317

Brief Summary Text (20):
Prior attempts to monitor patients remotely have also included the use of interactive telephone or video response systems. Such interactive systems are disclosed in U.S. Pat. Nos. 5,390,238 issued to Kirk et al. on Feb. 14, 1995, 5,434,611 issued to Tamura on Jul. 18, 1995, and 5,441,047 issued to David et al. on Aug. 15, 1995. One disadvantage of these systems is that they either require a patient to call in to a central facility to be monitored or require the central facility to call the patient according to a rigid monitoring schedule.

Brief Summary Text (21):
If the patients are required to call the central facility, only the compliant patients will actually call regularly to be monitored. Non-compliant patients will typically wait until an emergency situation develops before contacting their healthcare provider, thus defeating the purpose of the monitoring system. If the central facility calls each patient according to a monitoring schedule, it is intrusive to the patient's life and resistance to the monitoring grows over time.

Brief Summary Text (32):
The clearinghouse also can fill an additional communication need, allowing information such as changes in medication dosage or other information such as modification in the user's monitoring schedule to be electronically sent to a system user. In arrangements that incorporate this particular aspect of the invention, information can be sent to the user via a telephone connection and the data management unit modem when a specific inquiry is initiated by the user, or when the user establishes a telephone connection with the clearinghouse for other purposes such as providing data for standardized reports.

Detailed Description Text (9):
An even further advantage of using a compact video game system for handheld microprocessor 12 is that such video game systems include means for easily establishing the electrical interconnection provided by cable 14 in FIG. 1. In particular, such compact video game systems include a connector mounted to the game unit housing (40 in FIG. 1) and a cable that can be connected between the connectors of two video game units to allow interactive operation of the two interconnected units (i.e., to allow contemporaneous game play by two players or competition between players as they individually play identical but separate games). In the preferred embodiments of the invention, the "two-player" cable supplied with the compact video game unit being used as handheld microprocessor unit 12 is used as cable 14 to establish serial data communication between the handheld microprocessor unit 12 (compact video game system) and data management unit 10. In these preferred embodiments, the program instructions stored on the memory of data management unit 10 and program cartridge 42 respectively program

data management unit 10 and the compact video game system (i.e., handheld microprocessor unit 12) for interactive operation in which switches 30, 32, 34, 36 and 38 are used to control the operation of data management unit 10 (e.g., to select a particular operational mode such as performance of a blood glucose test or the display of statistical test data and, in addition, to control operation such as selection of an option during operation of the system in a particular operational mode). In each operational mode, data management unit 10 processes data in accordance with program instructions stored in the memory circuits of data management unit 10. Depending upon the operational mode selected by the user, data is supplied to data management unit 10 by blood glucose monitor 16, by additional monitors (20 and 22 in FIG. 1) or any interconnected computers or data processing facility (such as the hereinafter described user's computer 48 and clearinghouse 54 of FIG. 1). During such operation, mode switches 30, 32, 34, 36 and 38 are selectively activated so that signals are selectively coupled to the video game system (handheld microprocessor unit 12) and processed in accordance with program instructions stored in program cartridge 42. The signal processing performed by handheld microprocessor unit 12 results in the display of alphanumeric, symbolic, or graphic information on the video game display screen (i.e., display unit 28 in FIG. 1), which allow the user to control system operation and obtain desired test results and other information.

Detailed Description Text (10):
Although the above-discussed advantages apply to use of the invention by all age groups, employing a compact video game system in the practice of the invention is of special significance in monitoring a child's blood glucose or other health parameters. Children and young adults are familiar with compact video game systems. Thus, children will accept a health monitoring system incorporating a compact video game system more readily than a traditional system, even an embodiment of the invention that uses a different type of handheld microprocessor unit. Moreover, an embodiment of the invention that functions in conjunction with a compact video game system can be arranged to motivate children to monitor themselves more closely than they might otherwise by incorporating game-like features and/or animation in system instruction and test result displays. Similarly, the program instructions can be included in program cartridges 41, 42 and 43 (or additional cartridges) that allow children to select game-like displays that help educate the child about his or her condition and the need for monitoring.

Detailed Description Text (11):
With continued reference to FIG. 1, data management unit 10 of the currently preferred embodiments of the invention includes a data port 44 that allows communication between data management unit 10 and a personal computer 48 (or other programmable data processor). In the currently preferred embodiments of the invention, data port 44 is an RS-232 connection that allows serial data communication between data management unit 10 and personal computer 48. In the practice of the invention, personal computer 48 can be used to supplement data management unit 10 by, for example, performing more complex analyses of blood glucose and other data that has been supplied to and stored in the memory circuits of data management unit 10. With respect to embodiments of the invention configured for use by a child, personal computer 48 can be used by a parent or guardian to review and analyze the child's progress and to produce printed records for subsequent review by a healthcare professional. Alternatively, personal computer 48 can be used to supply data to data management unit 10 that is not conveniently supplied by using handheld microprocessor switches 30, 32, 34, 36 and 38 as an operator interface to the system shown in FIG. 1. For example, some embodiments of the invention may employ a substantial amount of alphanumeric information that must be entered by the system user. Although it is possible to enter such data by using switches 30, 32, 34, 36 and 38 in conjunction with menus and selection screens displayed on display screen 28 of FIG. 1, it may be more advantageous to use a device such as personal computer 48 for entry of such data. However, if personal computer 48 is used in this manner, some trade-off of system features may be

required because data management unit 10 must be temporarily interconnected with personal computer 48 during these operations. That is, some loss of system mobility might result because a suitably programmed personal computer would be needed at each location at which data entry or analysis is to occur.

Detailed Description Text (18):
The arrangement of FIG. 2 also allows the healthcare professional to send messages and/or instructions to each patient via computer 62, telephone line 64, and clearinghouse 54. In particular, clearinghouse 54 can be programmed to generate a menu that is displayed by computer 62 and allows the healthcare professional to select a mode of operation in which information is to be sent to clearinghouse 54 for subsequent transmission to a user of the system described relative to FIG. 1. This same menu (or related submenus) can be used by the healthcare professional to select one or more modes of operation of the above-described type in which either unmodified patient data or the results of data that has been analyzed by clearinghouse 54 is provided to the healthcare provider via computer 62 and/or facsimile machine 55.

Detailed Description Text (19):
In the currently contemplated arrangements, operation of the arrangement of FIG. 2 to provide the user of the invention with messages or instructions such as changes in medication or other aspects of the healthcare program is similar to the operation that allows the healthcare professional to access data sent by a patient, i.e., transmitted to clearinghouse 54 by a data management unit 10 of FIG. 1. The process differs in that the healthcare professional enters the desired message or instruction via the keyboard or other interface unit of computer 62. Once the data is entered and transmitted to clearinghouse 54, it is stored for subsequent transmission to the user for whom the information or instruction is intended. With respect to transmitting stored messages or instructions to a user of the invention, at least two techniques are available. The first technique is based upon the manner in which operational modes are selected in the practice of the invention. Specifically, in the currently preferred embodiments of the invention, program instructions that are stored in data management unit 10 and program cartridge 42 cause the system of FIG. 1 to generate menu screens which are displayed by display unit 28 of handheld microprocessor unit 12. The menu screens allow the system user to select the basic mode in which the system of FIG. 1 is to operate and, in addition, allow the user to select operational subcategories within the selected mode of operation. Various techniques are known to those skilled in the art for displaying and selecting menu items. For example, in the practice of this invention, one or more main menus can be generated and displayed which allow the system user to select operational modes that may include: (a) a monitor mode (e.g., monitoring of blood glucose level); (b) a display mode (e.g., displaying previously obtained blood glucose test results or other relevant information); (c) an input mode (e.g., a mode for entering data such as providing information that relates to the healthcare regimen, medication dosage, food intake, etc.); and, (d) a communications mode (for establishing a communication link between data management unit 10 and personal computer 48 of FIG. 1; or between data management unit 10 and a remote computing facility such as clearinghouse 54 of FIG. 2).

Detailed Description Text (20):
In embodiments of the invention that employ a compact video game system for handheld microprocessor unit 12, the selection of menu screens and the selection of menu screen items preferably is accomplished in substantially the same manner as menu screens and menu items are selected during the playing of a video game. For example, the program instructions stored in data management unit 10 and program cartridge 42 of the arrangement of FIG. 1 can be established so that a predetermined one of the compact video game switches (e.g., switch 32 in FIG. 1) allows the system user to select a desired main menu in the event that multiple main menus are employed. When the desired main menu is displayed, operation by the user of control pad 30 allows a cursor or other indicator that is displayed on the

menu to be positioned adjacent to or over the menu item to be selected. Activation of a switch (e.g., switch 36 of the depicted handheld microprocessor unit 12) causes the handheld microprocessor unit 12 and/or data management unit 10 to initiate the selected operational mode or, if selection of operational submodes is required, causes handheld microprocessor unit 12 to display a submenu.

Detailed Description Text (21):
In view of the above-described manner in which menus and submenus are selected and displayed, it can be recognized that the arrangement of FIG. 1 can be configured and arranged to display a menu or submenu item that allows the user to obtain and display messages or instructions that have been provided by a healthcare professional and stored in clearinghouse 54. For example, a submenu that is generated upon selection of the previously mentioned communications mode can include submenu items that allow the user to select various communication modes, including a mode in which serial data communication is established between data management unit 10 and clearinghouse 54 and data management unit 10 transmits a message status request to clearinghouse 54. When this technique is used, the data processing system of clearinghouse 54 is programmed to search the clearinghouse memory to determine whether a message exists for the user making the request. Any messages stored in memory for that user are then transmitted to the user and processed for display on display unit 28 of handheld microprocessor unit 12. If no messages exist, clearinghouse 54 transmits a signal that causes display unit 28 to indicate "no messages." In this arrangement, clearinghouse 54 preferably is programmed to store a signal indicating that a stored message has been transmitted to the intended recipient (user). Storing such a signal allows the healthcare professional to determine that messages sent to clearinghouse 54 for forwarding to a patient have been transmitted to that patient. In addition, the program instructions stored in data management unit 10 of FIG. 1 preferably allow the system user to designate whether received messages and instructions are to be stored in the memory of data management unit 10 for subsequent retrieval or review. In addition, in some instances it may be desirable to program clearinghouse 54 and data management unit 10 so that the healthcare professional can designate (i.e., flag) information such as changes in medication that will be prominently displayed to the user (e.g., accompanied by a blinking indicator) and stored in the memory of data management unit 10 regardless of whether the system user designates the information for storage.

Detailed Description Text (22):
A second technique that can be used for forwarding messages or instructions to a user does not require the system user to select a menu item requesting transmission by clearinghouse 54 of messages that have been stored for forwarding to that user. In particular, clearinghouse 54 can be programmed to operate in a manner that either automatically transmits stored messages for that user when the user operates the system of FIG. 1 to send information to the clearinghouse or programmed to operate in a manner that informs the user that messages are available and allows the user to access the messages when he or she chooses to do so.

Detailed Description Text (29):
FIGS. 4-10 illustrate typical screen displays that are generated by the arrangement of the invention described relative to FIGS. 1-3. Reference will first be made to FIGS. 4 and 5, which exemplify screen displays that are associated with operation of the invention in the blood glucose monitoring mode. Specifically, in the currently preferred embodiments of the invention, blood glucose monitor 16 operates in conjunction with data management unit 10 and handheld microprocessor unit 12 to: (a) perform a test or calibration sequence in which tests are performed to confirm that the system is operating properly; and, (b) perform the blood glucose test sequence in which blood glucose meter 16 senses the user's blood glucose level. Suitable calibration procedures for blood glucose monitors are known in the art. For example, blood glucose monitors often are supplied with a "code strip," that is inserted in the monitor and results in a predetermined value being displayed and

stored in memory at the conclusion of the code strip calibration procedure. When such a code strip calibration procedure is used in the practice of the invention, the procedure is selected from one of the system menus. For example, if the system main menu includes a "monitor" menu item, a submenu displaying system calibration options and an option for initiating the blood glucose test may be displayed when the monitor menu item is selected. When a code strip option is available and selected, a sequence of instructions is generated and displayed by display screen 28 of handheld microprocessor unit 12 to prompt the user to insert the code strip and perform all other required operations. At the conclusion of the code strip calibration sequence, display unit 28 of handheld microprocessor unit 12 displays a message indicating whether or not the calibration procedure has been successfully completed. For example, FIG. 4 illustrates a screen display that informs the system user that the calibration procedure was not successful and that the code strip should be inserted again (i.e., the calibration procedure is to be repeated). As is indicated in FIG. 4, display screens that indicate a potential malfunction of the system include a prominent message such as the "Attention" notation included in the screen display of FIG. 4.

Detailed Description Text (32):
The arrangement shown and described relative to FIGS. 1-3 also is advantageous in that data relating to food intake, concurrent medication dosage and other conditions easily can be entered into the system and stored with the time and date tagged blood glucose test result for later review and analysis by the user and/or his or her healthcare professional. Specifically, a menu generated by the system at the beginning or end of the blood glucose monitoring sequence can include items such as "hypoglycemic" and "hyperglycemic," which can be selected using the switches of handheld microprocessor unit 12 (e.g., operation of control pad 30 and switch 36 in FIG. 1) to indicate the user was experiencing hypoglycemic or hyperglycemic symptoms at the time of monitoring blood glucose level. Food intake can be quantitatively entered in terms of "Bread Exchange" units or other suitable terms by, for example, selecting a food intake menu item and using a submenu display and the switches of handheld microprocessor 12 to select and enter the appropriate information. A similar menu item--submenu selection process also can be used to enter medication data such as the type of insulin used at the time of the glucose monitoring sequence and the dosage.

Detailed Description Text (33):
As was previously mentioned, program instructions stored in data management unit 10 and program instructions stored in program cartridge 42 of handheld microprocessor unit 12 enable the system to display statistical and trend information either in a graphic or alphanumeric format. As is the case relative to controlling other operational aspects of the system, menu screens are provided that allow the system user to select the information that is to be displayed. For example, in the previously discussed embodiments in which a system menu includes a "display" menu item, selection of the menu item results in the display of one or more submenus that list available display options. For example, in the currently preferred embodiments, the user can select graphic display of blood glucose test results over a specific period of time, such as one day, or a particular week. Such selection results in displays of the type shown in FIGS. 6 and 7, respectively. When blood glucose test results for a single day are displayed (FIG. 6), the day of the week and date can be displayed along with a graphic representation of changes in blood glucose level between the times at which test results were obtained. In the display of FIG. 6, small icons identify points on the graphic representation that correspond to the blood glucose test results (actual samples). Although not shown in FIG. 6, coordinate values for blood glucose level and time of day can be displayed if desired. When the user chooses to display a weekly trend graph (FIG. 7), the display generated by the system is similar to the display of a daily graph, having the time period displayed in conjunction with a graph that consists of lines interconnecting points that correspond to the blood glucose test results.

Detailed Description Text (35):
The currently preferred embodiments of the invention also allow the user to select a display menu item that enables the user to sequentially address, in chronological order, the record of each blood glucose test. As is indicated in FIG. 9, each record presented to the system user includes the date and time at which the test was conducted, the blood glucose level, and any other information that the user provided. For example, the screen display of FIG. 9 indicates that the user employed handheld microprocessor unit 12 as an interface to enter data indicating use of 12.5 units of regular insulin; 13.2 units of "NPH" insulin; food intake of one bread exchange unit; and pre-meal hypoglycemic symptoms.

Detailed Description Text (40):
It also should be noted that all or a portion of the functions and operations attributed to data management unit 10 of FIG. 1 can be performed by microprocessor circuitry located in blood glucose monitor 16 (or other monitor that is used with the system). For example, a number of commercially available blood glucose monitors include a clock/calendar circuit of the type described relative to FIG. 3 and, in addition, include microprocessor circuitry for generating visual display signals and signals representative of both current and past values of monitored blood glucose level. Conventional programming and design techniques can be employed to adapt such commercially available units for the performance of the various functions and operations attributed in the above discussion of FIGS. 1-11 to data management unit 10 and/or the microprocessors of handheld unit 12 and compact video console 102. In arrangements in which the blood glucose monitor (or other system monitor) includes a microprocessor that is programmed to provide signal processing in the above-described manner, the invention can use a signal interface unit 110 of the above-described type. That is, depending upon the amount of signal processing effected by the monitoring unit (e.g., blood glucose monitor 16) and the amount of signal processing performed by the microprocessor of video game console 102 (or handheld unit 12), the signal interface required ranges from a conventional cable (e.g., interconnection of RS232 ports) to an arrangement in which signal interface 110 is arranged for signal communication with an internal or external modem (e.g., modem 52 of FIG. 11) or an arrangement in which signal interface 110 provides only a portion of the signal processing described relative to FIGS. 1-10.

Detailed Description Text (58):
The script commands illustrated in Table 1 are representative of the preferred embodiment and are not intended to limit the scope of the invention. After consideration of the ensuing description, it will be apparent to one skilled in the art many other suitable scripting languages and sets of script commands may be used to implement the invention.

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